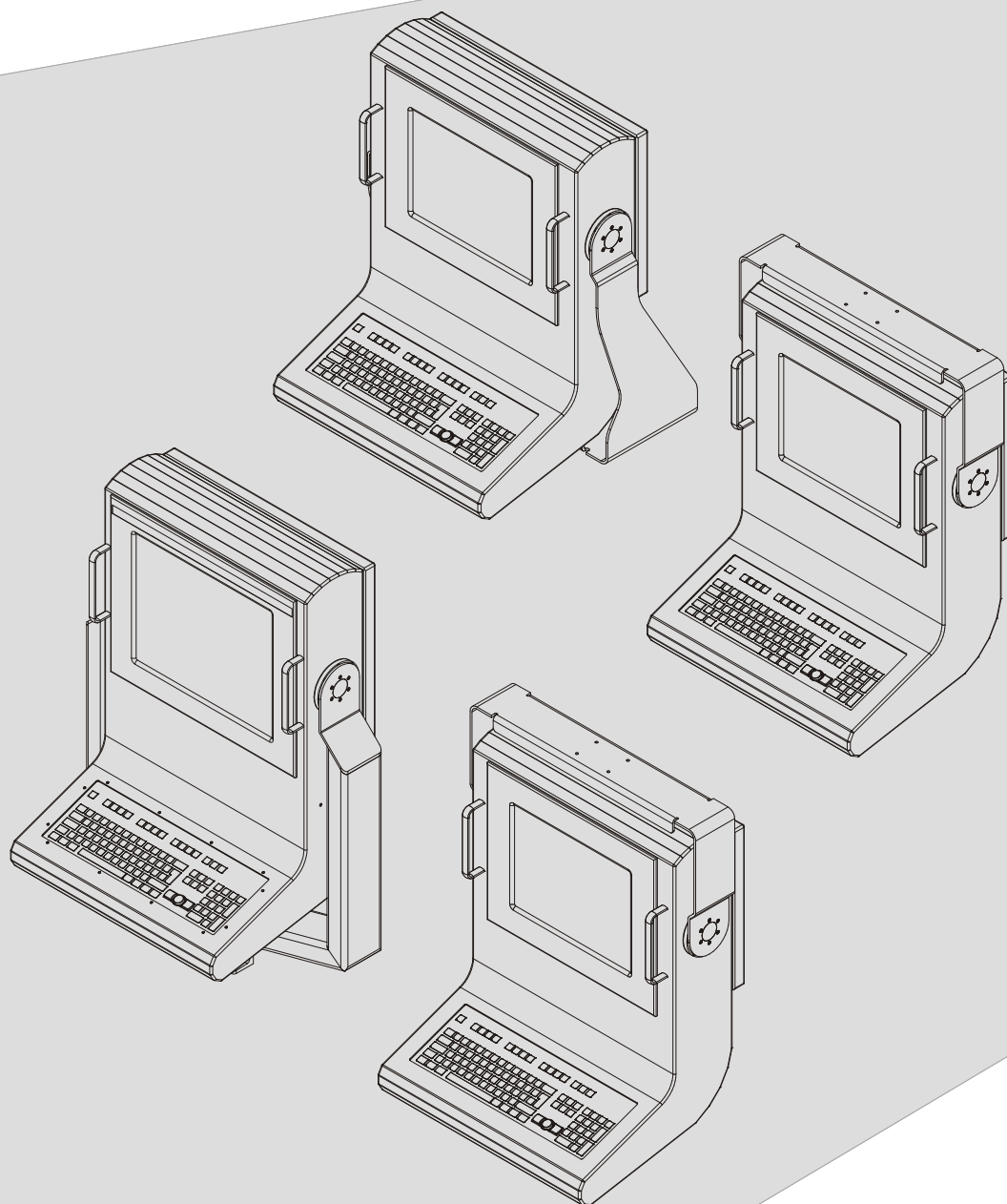# RAC6188 Operator Display Station

Allen-Bradley

Bulletin 6188-A, and 6188-B

Installation and User Manual

Rockwell Automation

Table of Contents

6188 Operator Display Station

The 6188 Operator Display Station is a sealed ergonomic industrial enclosure that gives your operators one simple, but elegant interface to applications.

You view an application on the display of the flat panel monitor and use the keyboard, mouse, or integrated touchscreen to control and monitor your system.

The slim, attractive, tightly integrated design of the RAC6188 would be impossible to replicate with an off-the-shelf enclosure. The RAC6188 is a complete solution, ready to go with no engineering required.

The 6188 incorporates industry-leading Allen-Bradley flat panel monitors (RAC6185) to give you a bright and easy-to-read display.

Operators need a simple, efficient interface with their application. The RAC6188 is an ideal solution for your distributed control system or process control application.

This one-piece operator station connects to any standard PC computer, and it includes:

- Flat panel monitor the most widely-installed products from our RAC6185 family of industrial flat panel monitors (6185-C 15.0 in. or 6185-D 18.1 in.)

- Integrated touchscreens for the most intuitive operator interface

- Sealed membrane 101-key keyboard and touch mouse

- Signal extender to allow remote operation up to 400 ft. (122 m) from the host PC. The extender sends video, keyboard, mouse, and touchscreen signals over a single, low-cost Cat-5 cable.

This manual provides installation, operation, and maintenance instructions for the Allen-Bradley 6188 Operator Display Station.

The shipping cartons contain the following items:

- 6188 Operator Display Station

- ScreenSet monitor setup utility

- This user manual

- An Operator Display Station with a touchscreen option ships with supporting software and manuals on disk or CD

Operator Display Station Feature Overview

Resolutions

The Operator Display Station auto-syncs to lower resolution video signals, plus, has on-screen set up menus/controls for any manual adjustments.

Table A
Resolutions

Flat Panel Display Size	Resolution	CRT Equivalent Size
15.0"	640 x 480 to 1024 x 768 (Native)	17"
18.1"	640 x 480 to 1280 x 1024 (Native)	20"

15.0 and 18.1 Specific Features

Capabilities specific to the 15.0 display include the following:

- 1024x768 resolution

- 256K color (18-bit) display

- Bright (200 nits) Active Matrix-TFT 1024x768 display

- Auto-Adjustment function attempts to adjust the settings properly based on the current signal.

Capabilities specific to the 18.1 display include the following:

- 1280x1024 resolution

- 16m (24-bit) True Color display

- Bright (200 nits) Active Matrix-TFT 1280x1024

Mounting Options

The RAC6188 has four mounting options: Each option gives you the flexibility to adjust the enclosure for ideal positioning.

- Table Top and Floor Pedestal

  For applications where you need the operator station in a fixed position, Rockwell Automation offers the RAC6188 with a table top

or floor pedestal mounting option. Both of these mounting options provide side-to-side swivel (180˚) and tilt (30˚) for optimum viewing.

- Wall Mount Arm and Overhead

  For applications where floor or tabletop space is limited, consider the overhead or wall mount arm options.

  The overhead mount option allows you to mount the Operator Display Station above the operator in a fixed position. This option gives you 30° tilt adjustment.

  Each wall mount arm provides 360° swivel, 30° tilt, and full side-to-side positioning. Vertical positioning options depend on the enclosure material.

Enclosure Options

The RAC6188 can withstand the rigors of your harsh environment. In addition to its ergonomic design, the RAC6188 is rugged. You can chose from:

Environmental Rating	NEMA 4/12	NEMA 4X
Construction Material	Painted aluminum, powder coat finish	Type 316L Stainless Steel

Remote Operation with Signal Extender

You can install the Operator Display Station up to 400 ft (122 m) away from any standard PC computer.

You can install the 6188 on the factory floor where the environment is harsh and space is at a premium, and then connect the Operator Display Station to the signal transmitter located on the other side of the plant. Simply connect the signal transmitter to the host PC.

You can connect to the host computer using your own low-cost, twisted-pair Cat-5 cable. The video, keyboard, mouse, and touchscreen host signals are multiplexed across the Cat-5 cable by the transmitter, located at the computer and the transmitter in the Operator Display Station.

You can even connect an additional monitor, keyboard, and mouse to the transmitter for backup, troubleshooting, setup and local control. All power for the signal extender transmitter is supplied by the Operator Display Station.

Heat Sink Option

For warmer environments, the RAC6188 has an optional heat sink with internal fans that raises the operating temperature spec to 45°C.

Connections

The 6188 supports standard PS/2 mouse and keyboard connections as well as AT keyboard and serial mouse connectors and accommodates standard Windows operating systems

Part Numbers

The part number for your particular unit consists of the Bulletin number (6188) followed by a ten-digit code indicating the enclosure type, equipment configuration, and options on your unit.

Following are explanations of the part numbers for the various models of monitors.

Example:

6188	AB	CF	A	A	A	Z	F	Z
1	2	3	4	5	6	7	8	9

Table B
Catalog Number Explanation for 6185 Economy Line Monitors

Position	Option	Option Letter	Category Description
2	Enclosure Type	AA	L-Series Enclosure for 15 in. display, NEMA 4 (Aluminum)
		AB	L-Series Enclosure for 15 in. display, NEMA 4X (Stainless Steel)
		BA	L-Series Enclosure for 18.1 in. display, NEMA 4 (Aluminum)
		BB	L-Series Enclosure for 18.1 in. display, NEMA 4X (Stainless Steel)
3	Equipment Configuration	CA	15 in. Monitor, 1024x768), No Touchscreen
		CB	15 in. Monitor, 1024x768), NEMA 4X Stainless Steel, No Touchscreen
		CE	15 in. Monitor, 1024x768), Resistive Antiglare Touchscreen
		CF	15 in. Monitor, 1024x768), NEMA 4X Stainless Steel, Resistive Antiglare Touchscreen
		DA	18.1 in. Monitor, 1280x1024), No Touchscreen
		DB	18.1 in. Monitor, 1280x1024), NEMA 4X Stainless Steel, No Touchscreen
		DE	18.1 in. Monitor, 1280x1024), Resistive Antiglare Touchscreen
		DF	18.1 in. Monitor, 1280x1024), NEMA 4X Stainless Steel, Resistive Antiglare Touchscreen
4	Power Input/ Connections	A	100 to 132 V AC, Conduit Connection Panel
5	Input Device	A	Sealed NEMA 4/4X 101 Membrane Keyboard, Sealed Touch Mouse
6	Communications	A	Cat-5 Extender (Video, Keyboard, Mouse, Touchscreen) 400 ft. max, No Cable
7	Cooling Option	A	Heat Sink with Internal Fans (Mounted on Rear Door)
		Z	None
8	Enclosure Accessories	A	Table Top Mounting, NEMA 4 (Tilt and swivel)
		B	Floor Pedestal Mounting, NEMA 4 (Tilt and swivel)
		C	Overhead Mounting (Tilt)
		D	Wall Mount Arm Mounting (Tilt and swivel, up and down, side to side)
		E	Table Top Mounting, NEMA 4X Stainless Steel (Tilt and swivel)
		F	Floor Pedestal Mounting, NEMA 4X Stainless Steel (Tilt and swivel)
		G	Overhead Mounting, NEMA 4X Stainless Steel (Tilt)
		H	Wall Mount Arm Mounting, NEMA 4X Stainless Steel (Tilt and swivel, side to side)
9	Future Use	Z	None

Setting up Your Operator Display Station

Before you Begin

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┌─────────────────────┐
│     Setting Up      │
└─────────────────────┘
          ▼
┌─────────────────────┐
│     Unpacking       │
└─────────────────────┘
          ▼
┌─────────────────────┐
│     Mounting        │
└─────────────────────┘
          ▼
┌─────────────────────┐
│ Making Connections  │
└─────────────────────┘
          ▼
┌─────────────────────┐
│    Connecting       │
│      Power          │
└─────────────────────┘
          ▼
┌─────────────────────┐
│  Connecting to      │
│   the Host          │
│ Computer Signal     │
│  Transmitter        │
└─────────────────────┘
          ▼
┌─────────────────────┐
│  Installing the     │
│ Signal Extender     │
└─────────────────────┘
          ▼
┌─────────────────────┐
│ Connecting the      │
│  Video Source       │
└─────────────────────┘
          ▼
┌─────────────────────┐
│ Powering Up the     │
│    System           │
└─────────────────────┘
          ▼
┌─────────────────────┐
│ Configuring Video   │
│     Setup           │
└─────────────────────┘
          ▼
┌─────────────────────┐
│ Setting Up the      │
│  Touchscreen        │
│   (optional)        │
└─────────────────────┘
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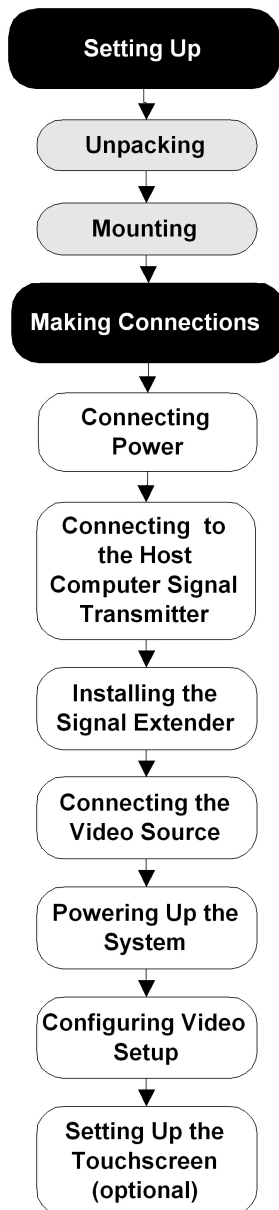
This section describes how to setting up 6188.

When installing the Operator Display Station, it is important to consider environmental factors that could affect performance as well as possible effects from equipment operation on personnel and nearby equipment.

The figure on the left displays the general process to install, connect, and adjust your monitor.

Installation Guidelines

Following these guidelines will help ensure that the monitor provides safe and reliable service.

- Ensure that sufficient **power** is available from a single phase AC outlet at the site.

- Ensure that sufficient **space** is available for air circulation necessary for cooling.

- Ensure that the **ambient air temperature** will not exceed the specified maximum temperature.

Important: This Operator Display Station is designed to operate at a range of extremes, however it is not good design practice to continuously operate it at the highest end of the specified temperature range.

While the product will operate at its highest specified temperature, the overall life span of *any* electronic device is shortened when it operates at its highest rated temperature.

- Leave the Operator Display Station's rear door closed at all times during operation. The sealed enclosure affords protection against dust, dirt, and liquids in the environment.

- The Federal Communications Commission has prepared a pamphlet that addresses the problem of **radio frequency interference** to radio and television reception, which should be consulted in case of problems with such interference. This publication, "How to Identify and Resolve Radio/TV Interference Problems" (Stock #004-000-00345-4) may be obtained from the US Government Printing Office, Washington, DC 20402.

Unpacking the Operator Display Station

1. Open the top cap from the shipping box.

2. Make sure the unit is free from defects, scratches, or other blemishes in appearance. All Allen-Bradley products are shipped in specially designed boxes with foam inserts, to minimize the possibility of damage. However, if a problem has occurred in shipping, please make note on the bill of lading, contact the shipping carrier immediately and notify Allen-Bradley of the circumstances. In addition, save all packing materials and take pictures of the damage noted.

3. Make sure that the unit(s) and all accessories listed on the packing slip are included.

4. With the assistance of 2-3 people, carefully lift unit out of the box by reaching under the unit, on the sides.

5. Place the unit on a flat, level surface for further inspection.

6. Select on of the basic mounting configurations.

Mounting the Operator Display Station

Mounting on a Table-Top

1. No assembly is required. Simply place the unit onto the table or bench top.

2. You may want to adjust (tilt) the workstation forward or backward to the best ergonomic position.

3. Tighten down the palm grip handles to lock it in place.

Mounting on a Pedestal

1. Bolt the mounting pedestal to the floor.

2. Then bolt the workstation to the mounting pedestal using hardware supplied.

    The (4) hole pattern in the 9"x9" top mounting plate matches the hole pattern in the bottom of the yoke assembly.

3. Tilt the workstation forward or backward to the best ergonomic position and tighten down the palm grip handles to lock it in place.

Mounting Using a Flex Arm

1. Bolt the flex arm mounting plate to the mounting surface (wall or tall pedestal) using the hardware supplied.

2. Then remove the yoke from the Operator Display Station enclosure and mount it to the swivel part of the flex arm using the hardware provided.

3. Re-assemble the yoke to the Operator Display Station enclosure using the two side-mount palm grip handles. This may require 1 or 2 people to hold the enclosure while installing the palm grip handle studs through the yoke index plates and into the workstation yoke mounts.

4. Tilt the workstation forward or backward to the best ergonomic position and tighten down the palm grip handles to lock it in place.

⚠	**WARNING:** Once installed into the yoke, do not loosen the palm grip handles more that 1 or 2 turns while adjusting the workstation's tilt position. Unscrewing the palm grip handles to far can cause the workstation to detach from the yoke and drop.

Mounting Overhead

1. Remove the yoke from the Operator Display Station.

2. Bolt the yoke to an overhead surface.

3. Re-assemble the yoke to the Operator Display Station enclosure using the two side-mount palm grip handles. This may require 1 or 2 people to hold the enclosure while installing the palm grip handle studs through the yoke index plates and into the workstation yoke mounts.

4. Tilt the workstation forward or backward to the best ergonomic position and tighten down the palm grip handles to lock it in place.

Making Connections

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┌─────────────────────┐
│     Setting Up      │
└─────────────────────┘
          ▼
 ┌──────────────────┐
 │    Unpacking     │
 └──────────────────┘
          ▼
 ┌──────────────────┐
 │     Mounting     │
 └──────────────────┘
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┌─────────────────────┐
│  Making Connections │
└─────────────────────┘
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 ┌──────────────────┐
 │    Connecting    │
 │      Power       │
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 ┌──────────────────┐
 │  Connecting  to  │
 │     the Host     │
 │ Computer Signal  │
 │   Transmitter    │
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 │  Installing the  │
 │ Signal Extender  │
 └──────────────────┘
          ▼
 ┌──────────────────┐
 │ Connecting the   │
 │  Video Source    │
 └──────────────────┘
          ▼
 ┌──────────────────┐
 │ Powering Up the  │
 │     System       │
 └──────────────────┘
          ▼
 ┌──────────────────┐
 │ Configuring Video│
 │      Setup       │
 └──────────────────┘
          ▼
 ┌──────────────────┐
 │ Setting Up the   │
 │   Touchscreen    │
 │   (optional)     │
 └──────────────────┘
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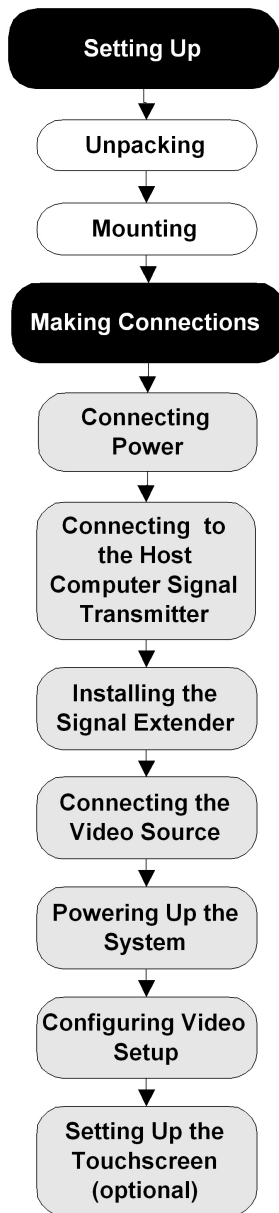
The RAC6188 gives you great flexibility— you can install the Operator Display Station up to 400 ft (122 m) away from any standard PC computer. After installing the RAC6188 on the factory floor, you then connect the RAC6188 to the signal transmitter located on the other side of the plant, and connect the signal transmitter to the host PC.

The RAC6188 connects to the host computer using your own low-cost CAT-5 cable. The RAC6188 sends video, keyboard, mouse, and touchscreen signals across the CAT-5 cable to the transmitter.

You can even connect an additional monitor, keyboard, and mouse to the transmitter for easy troubleshooting, setup and local control. The Operator Display Station internal cables for video, keyboard, touchmouse and optional touchscreens are factory-installed to the signal extender.

All power for the signal extender and transmitter is supplied by the Operator Display Station.
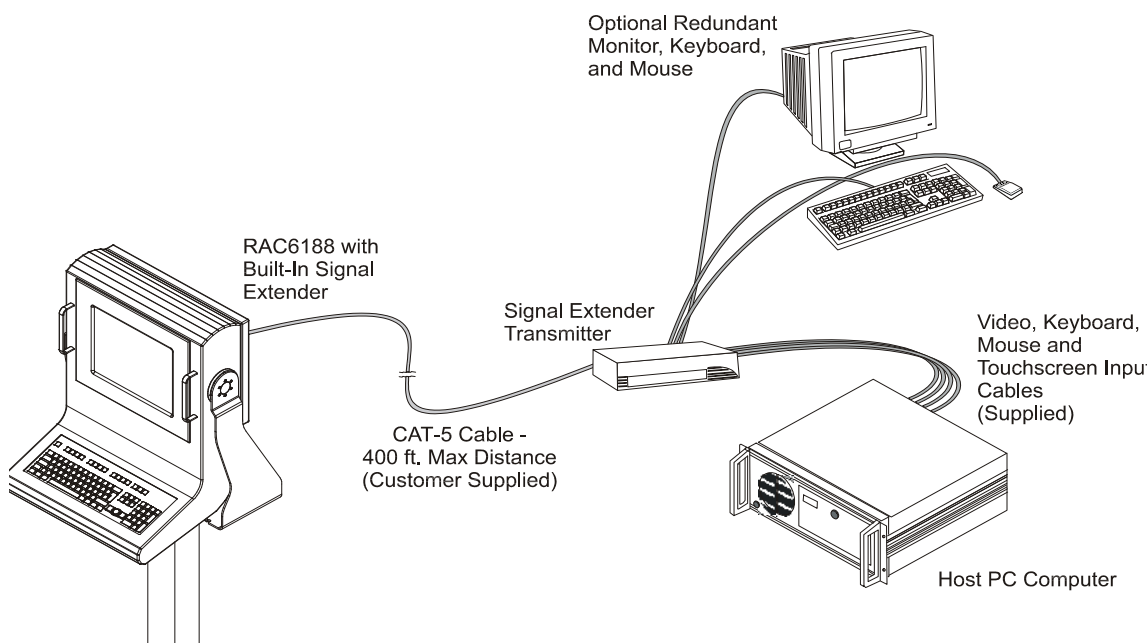
In the figure on the left, the gray shaded areas represent where you are now in the general process to install, connect, and adjust your Operator Display Station.

Connecting Power

Make sure you follow local codes and company procedures to ensure compliance with all governing rules and regulations.

WARNING: Prior to bringing any electrical power to the Workstation, read the following section.

Install all conduits and wire in accordance with the National Electric Code for the area that the Operator Display Station is installed, in addition to any relevant local codes.

The power source must originate from a dedicated 15 Amp circuit breaker or fused disconnect. This source should provide uninterrupted power to the Operator Display Station.

You need to supply Power wiring to the Operator Display Station via conduit through the lower-rear access panel.

1. Open the lower rear access panel using a phillips-head screwdriver.
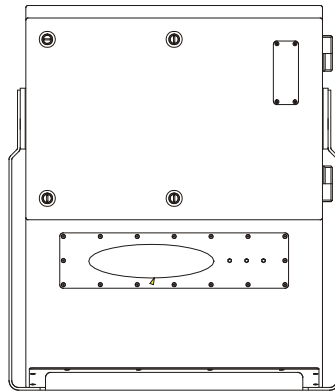
2. Bring single phase, 120 VAC (240 VAC Optional) electrical power into the workstation via the lower rear access panel. The rear panel can be tapped to accept conduit entry.

3. Route the wires to the main terminal block, located on the back of the access panel. Using the following:

    •   Hot to Black

    •   Neutral to White

    •   Ground to Green.

Note: Integrated components requiring power, such as the Flat Panel Display, Signal Extender, etc., are plugged into the Surge Suppressor when assembled at the factory.

Connecting the Cat-5 Cable between the Operator Display Station and the Host Computer Signal Transmitter

Install your computer in a *Local (Safe) Location* some distance from the Operator Display Station to protect it from the harsh environment. This area should be compatible with your computer's environmental needs.

1. Bring the Cat-5 (UTP) communications cable into the Operator Display Station via the lower rear access panel.

2. Route this cables into the Operator Display Station separately from the power cable.

3. Route Cat-5 (UTP) communications cable to the signal extender receiver mounted on the rear door of the enclosure.

Installing the Signal Extender

The Signal Extender is simple-to-install, and no software or expensive networking is required. There are no switch setting changes required to adapt to the connected peripherals.

The advanced circuitry provides automatic compensation for different cable lengths, video resolutions and COM serial port data rates.

Signal Extender Receiver

The Signal Extender *Receiver* unit is factory installed in the 6188 with the video, PS/2 keyboard, PS/2 touchmouse and optional serial touchscreen cables pre-wired.

The extender power supply is included, mounted, and pre-wired to the *Receiver* unit inside the Operator Display Station enclosure.

Signal Extender Transmitter

The Signal Extender *Transmitter* module comes as a boxed accessory with your system. This must be installed at the host computer.This includes the following:

• Transmitter box

• Custom prefabricated cable bundle that has Video, Keyboard and Touchmouse cables all terminating into one 25 pin D-sub connector marked "CUFC-GC".

• Serial cable for computer connection of the touchscreen will also be included if you purchased the touchscreen option.

The Signal Extender *Transmitter* module also supports a local monitor, keyboard and mouse for redundant control, troubleshooting, backup and hardware and software maintenance.

Signal Extenders Power

There are no power **On/Off** switches on either unit so they will be functional once power is applied.

> ⚠ **WARNING:** Do not install a power supply on the *Transmitter* unit since required power is transmitted from the *Receiver* side over the Cat-5 extender cable.

Connecting the Signal Extender

Your Signal Extender *Transmitter* module comes with a KVM-extension cable used to connect to your IBM PC compatible computer.

Connect the Transmitter Signal Extender Extension Module

1. Power down the computer.

2. Identify the KVM-extension custom bundled cable (CUFC-GC).

    These cables have one 25 pin D-sub connector

    *   The keyboard cable has PS/2 and AT style connectors on the end for support of either type system.

    *   The mouse cable has a PS/2 and 9-pin serial connectors on the end for support of either a PS/2 or serial mouse.

    *   The video cable (the larger one) has a HD-15 connector on the end.

3. Plug the 25-pin connector into the matching 25-pin female connector on the front panel of the *Transmitter* module.

4. Take the KVM connectors at the other end and plug them into the applicable computer ports, being careful not to switch the keyboard/mouse cables.

5. Plug the touchscreen (Optional) serial cable from the serial port on the *Transmitter* to a serial port on your computer.

    Note: Do not forget that you must load the touchscreen driver onto your computer and calibrate it for the touchscreen to function.

Connecting the Video Source

The video connection to the host is made through a HD-15 (female) connector.

You can connect the Operator Display Station either:

- Directly to your computer

- To your computer via the Signal Extender

To establish a signal using the HD-15 connector:

1. Obtain a shielded, properly terminated video cable of length as short as possible

2. Connect one end of the cable to the female HD-15 video input connector on the Operator Display Station.

3. Connect the other end to the output to one of the following:

   - Signal Extender

   - IBM-compatible VGA adapter

Powering Up the System

To power up the other devices attached to the Extender units, take these steps:

1. Power up the CPU and your computer's display, if necessary.

   Your CPU should boot normally - sensing the video, optional touchscreen, keyboard and touchmouse signals.

This completes the installation of your Signal Extenders; they are now ready for continuous operation.

Configuring Video Setup
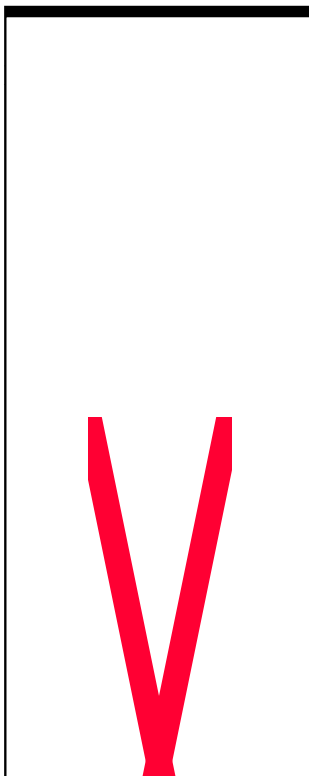
w to setup and configure your Operator

8 incorporates industry-leading Allen-Bradley
itors (RAC6185), we have included the
AC6185 manual.
dure in this manual to configure your video
ormation in this section provides a summary
process.

The Operator Display Station is configured at the factory, but typically requires initial adjustments to match the video card in your computer. Rockwell Automation provides the *Flat Panel Monitor Adjustment Utility* to assist you in adjusting the monitor settings.

Workstation Setup

You need to verify that your workstation is using the appropriate settings.

There are three important aspects of your workstation setup that affect the screen image of the Operator Display Station:
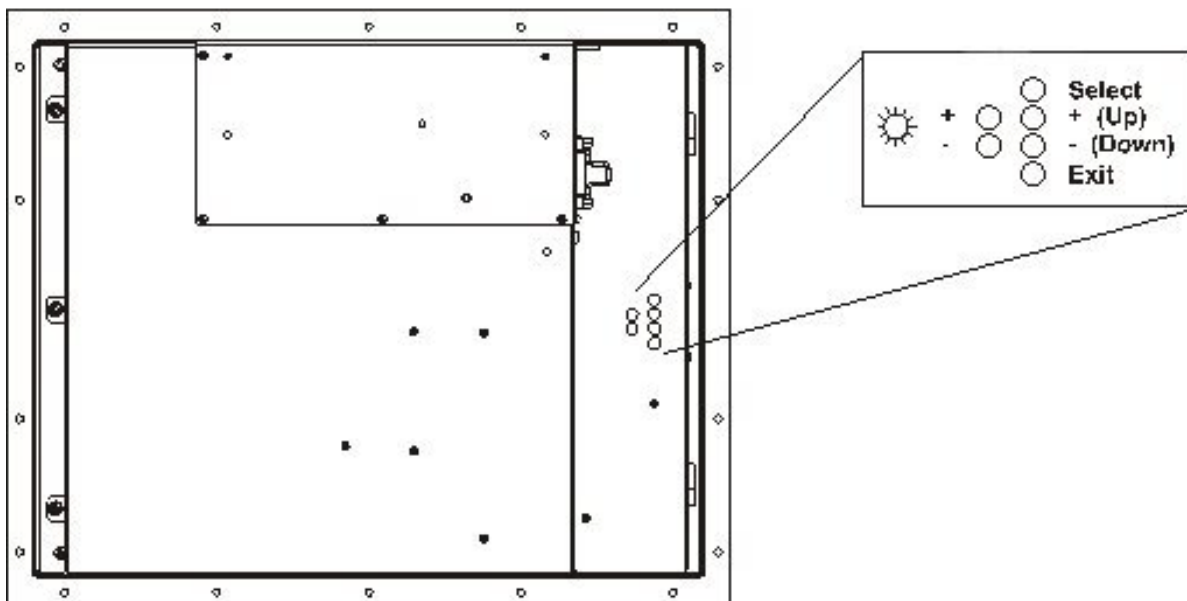
- Monitor type
- Video resolution
- Video refresh rate

After setting up your workstation, you are ready to begin to adjust the monitor itself.

Push Buttons

The Operator Display Station provides push buttons on the rear of the monitor to adjust the following settings:

- Brightness

- Contrast

- Position Information

By using the *Flat Panel Monitor Adjustment Utility* and push buttons on the rear of the monitor you can adjust these settings. The push buttons control the monitor's On-screen display (OSD).

The following table provides a summary to using the pushbuttons:

Table C
Pushbutton Summary

The Select Pushbutton…	The Up and Down Pushbuttons…
Starts the OSD.	Highlight the option you want.
Selects a highlighted option.	Adjust the selected option higher or lower.
Saves the value and returns to the previous menu.	

Setting Up Touchscreen Functionality

Touchscreen provides an additional method of operator interface.

1. You must install a software driver on your computer to handle communications with the touchscreen controller.

   Install the software on the host computer using the installation disks or CD included with the system accessories.

   All touchscreen controllers are configured by default to provide serial communications at 9600 baud, 8 data bits, 1 stop bit, no parity.

2. Perform a calibration on the touchscreen display by doing the following:

   a. Select the Start button and select Settings to access Control Panel.

   b. In Control Panel, select Elo Touchscreen/Monitor Mouse.

   c. Select the General tab and click on the Calibrate button.

   d. Touch the three reference targets that appear.

   e. Follow the directions that are presented

Because the touchscreen emulates a mouse, there may be compatibility issues involving how the touchscreen emulates mouse buttons, especially multiple buttons.

For more information, refer to the touchscreen documentation included with the touchscreen software.

Performing Routine Maintenance

Cleaning

Occasionally clean the Operator Display Station with a soft cloth dampened (not soaked) with a mild (non-abrasive) glass cleaner. Keep turning a fresh side of the cloth toward the screen surface to avoid scratching it with accumulated grit.

Note: The solvent should be applied only to the cloth, and not directly on the monitor screen.

Do not use paper products as they may scratch the surface. To minimize the risk of abrasion, allow the screen to stand dry.

> ⚠ **ATTENTION:** You can use alcoholic or ammoniacal cleaners to clean the polycarbonate shield or a touchscreen. However, use only one or the other at all times. A residue mixture can cause a chemical reaction.

Special care should be taken when cleaning a touchscreen or polycarbonate shield that is installed over the screen. Abrasive and certain chemical cleaners can easily damage the surface.

Replacing a Line Cord

To avoid shock and fire hazards, the Operator Display Station's power cord should be replaced if the insulation becomes broken or if it develops a loose internal connection.

Other Maintenance

Qualified service personnel should perform all maintenance, except for the power cord replacement described above.

Troubleshooting and Support

Troubleshooting Solutions

This section covers some typical problems you may encounter. The following identifies symptoms, possible problems and solutions for workstation components including the Flat Panel Display, Touchscreen, Keyboard w/Touchmouse, Signal Extender and Fiber Signal Extender.

The Troubleshooting Tables are arranged as follows:

- Flat Panel Displays

- LED Interpretation – Flat Panel Displays

- Touchscreens

- Keyboard with Touchmouse

- Signal Extender

Refer to this table to help identify the cause and offer a solution to a problem. This table lists typical problems you may encounter.

Table D:
Troubleshooting Table

Symptom	Possible Problem	Action
Status LED does not come on.	Display or video source off.	Turn on display, power source or video source.
	Power cord not connected.	Reconnect power cord.
	Power cord faulty.	Replace power cord.
	Monitor faulty.	Have monitor serviced.
Screen is blank.	Screensaver or energy saver activated by workstation.	Disable screen saver by activating input device.
	Contrast control not properly adjusted.	Turn the contrast control UP using on-screen menu or luminance control on the 18"
	Video cable problem	Check for proper installation of video cable. Replace suspected faulty cable.
Image is too bright or white	Contrast control not properly adjusted.	Turn the contrast control DOWN using on-screen menu.
No image visible even when brightness control is set full UP	Monitor is out of adjustment or faulty.	Have monitor serviced.
	Video cable problem	Check for proper installation of video cable. Replace suspected faulty cable.

Symptom	Possible Problem	Action
	Fault in video source	Test video source by connecting to known good monitor.
	Fault in monitor	Have monitor serviced.
Image is not centered.	Position controls are not properly adjusted.	Reset horizontal and vertical positioning using display on-screen menu. Check to see if video source is operating within monitor's range.
Image will not adjust.	Video timing outside of range.	Use on-screen menu to adjust the phase control. Make sure timing is set within guidelines.
Image position changes are not saved.	Position mode no exited correctly.	Reposition the image using on-screen menu and select EXIT to save the changes/exit.
Image is not stable	Monitor is not synched to video source.	Check for proper video cable installation. Replace suspected faulty cable. Check to ensure that video source is operating within monitor's range. Adjust Phase control using on-screen menu.
Image not properly centered or sized.	Size and position controls incorrectly adjusted.	Adjust controls for proper size/ position using onscreen menu.
Vertical shaded bars on screen image.	Horizontal size not properly adjusted.	Adjust horizontal size setting using on-screen menu.
Colors are missing.	Video cable problem	Check for proper video cable installation. Replace suspected faulty cable.
	Fault in monitor	Have monitor serviced.
Screen jitter or noisy video	Monitor clock phase not properly adjusted.	Adjust monitor clock phase setting using on-screen menu.
	Video cable problem	Check for proper video cable installation. Replace suspected faulty cable.
	Electrical noise interference from nearby equipment	Check for proper video cable installation. Re-route cables or replace suspected faulty cables. Check host and monitor ground.
Slight distortion in text or graphics.	Not operating monitor in native resolution	Change the Expand/Center settings using the on-screen menu or change the video source to native resolution.
Screen image does not fill the display	Not operating monitor in native resolution	Change the Expand/Center settings using the on-screen menu or change the video source to native resolution.
Image has blurry streaks or "ghosting" to the right of objects on the screen. Screen lacks one or two colors.	Contrast is set too high or overdriven video if full range dimming option is installed.	Adjust brightness and contrast settings using on-screen menu. Calibrate video gain using on-screen menu.
	Video cable problem.	Check for proper video cable installation. Replace suspected faulty cable.

NOTE: The On-Screen Menu can be activated and navigated using the SELECT, UP & DOWN buttons on the rear panel of the flat panel display.

Table E
LED Interpretation

Heading	Heading
GREEN (SOLID)	Normal Operation
AMBER (SOLID)	Power ON, loss of video sync or disconnected video cable.

Table F
Touchscreens

Symptom	Possible Problem	Action
Touchpoint different from area touched.	Calibration	Recalibrate touchscreen
Touchscreen does not work.	Touchscreen cable problem	Check for proper touchscreen cable installation. Replace suspected faulty cable.
	Software driver not loaded.	Install software driver using disk provided.
	Software driver load did not fully install.	Uninstall and re-install software driver.
Touchmouse movement or activation not acceptable.	Software settings need adjusted	On computer go to START, Settings & Control Panel. Select Elo Touchscreen Monitor Mouse Icon and make modifications to settings.

Table G
Installing the Touchscreen Driver Software

1. Open the file.	From an unzipped downloaded file:	
	If you are using 95/98	If you are using Windows NT
	• Double-click setup.exe in the **elowin95** folder. • Follow the installation directions	• Start NT Explorer • Right-click on the Start button • Click Explore • Double-click the setup.exe file in the EloNT directory and follow the installation directions.
	From a shipped diskette:	
	• Double-click setup.exe on the diskette	
	• Follow the installation directions	

2.	If more than one COM port is available, you will select the port your touchscreen cable is connected to.
3.	The calibration displays automatically. Calibrate the monitor by touching in the following corners of the display:

• Upper left

• Lower right

• Upper right

Table H
Uninstalling the Touchscreen Driver Software

If you are using 95/98	If you are using Windows NT	
Click on the **Start** button.	Click on the **Start** button.	
Select **Control Panel**.	Select **Control Panel**.	
Double-click **Add/Remove Programs**.	Double-click **Add/Remove Programs**.	
Double-click **Monitor Mouse** for Windows 95.	Double-click **MonitorMouse** for Windows NT.	
Click **OK**.	Click **Yes**.	
Using Explorer, delete the **elowin95** folder.	Using Explorer, delete the **ElowinNT** and **EloNt** folders.	
Reboot.	Using Explorer, delete the following files:	
	Files	Locations
	monmouse.cpl	winnt/system32
	monmouse.sys	winnt/system32/drivers
	elocal32.exe	winnt/system32
	mmstub.sys	winnt/system32/drivers
	Reboot.	

Table I
Keyboard with Touchmouse Troubleshooting

Symptom	Possible Problem	Action
Keyboard or Touchmouse not working	Computer off	Turn on computer or power source.
Keyboard not functioning	Keyboard cable problem	Check for proper keyboard cable installation. Replace suspected faulty cable.
	Keyboard faulty	Install in known good computer to confirm fault. Replace or service keyboard.
	Computer faulty	Substitute known good keyboard on computer to confirm fault.
Touchmouse not functioning	Touchmouse cable problem	Check for touchmouse cable installation. Replace suspected faulty cable.
	Touchmouse faulty	Install touchmouse in known good computer to confirm fault. Have unit replaced or serviced.
	Computer faulty	Substitute known good touchmouse on computer to confirm fault.

Table J
Signal Extender

Symptom	Possible Problem	Action
POWER indicator (s) not lit	Power supply	Verify that power supply is connected to Receiver unit. Verify 120VAC power source and 24VDC supply output.
	Cat-5 extension cable	Check Cat-5 extension cable is connected at both ends.
	Computer off	Turn on computer
No video or poor video quality	Transmitter/Receiver video cable	Check for proper video cable installation. Replace suspected faulty cable.
	Display problem	Ensure display is working correctly by connecting it directly to computer.
	Cat-5 extension cable length	Verify length of Cat-5 extension cable is within tolerable limits for resolution & refresh rate.
No keyboard/mouse operation	Transmitter/Receiver Keyboard/Mouse cables	Check for proper keyboard /mouse cable installation. Replace suspected faulty cable.
	Keyboard/mouse cables	Ensure keyboard/mouse cables are plugged into the correct jacks, then reboot.
	Cat-5 extension cable connection	Check Cat-5 extension cable is connected at both ends.
	Keyboard/mouse problem	Ensure keyboard/mouse is working correctly by plugging it directly to the computer.
No touchscreen operation	Transmitter/Receiver touchscreen cables	Check for proper touchscreen cable installation. Replace suspected faulty cable.
	Cat-5 extension cable	Check Cat-5 extension cable is connected at both ends.
	Touchscreen problem	Ensure touchscreen is working correctly by connecting it directly to computer.

Allen-Bradley Support

Rockwell Automation offers support services worldwide, with over 75 Sales/Support Offices, 512 authorized Distributors and 260 authorized Systems Integrators located throughout the United States alone, plus Allen-Bradley representatives in every major country in the world.

Note: When contacting Technical Support, always provide the serial number of the unit in question.

Local Product Support

Contact your local Allen-Bradley representative for:

• Sales and order support

• Product technical training

• Warranty support

• Support service agreements

Refer to the Rockwell Automation/Allen-Bradley Internet site at http://www.ab.com for local contact information.

Technical Product Assistance

If you need to contact Allen-Bradley for technical assistance, please review the information in the Troubleshooting section first. Then call your local Allen-Bradley representative or contact Allen-Bradley technical support at (440) 646-5800.

For additional product information and a description of the technical services available, visit the Rockwell Automation/Allen-Bradley Internet site listed above.

Appendix A: Technical Specifications

Materials

Enclosure

- Painted Aluminum (NEMA 4) or
- Stainless Steel 316L (NEMA 4X)

Pedestal

- Painted Steel (NEMA 4) or Stainless Steel (NEMA 4X)

Paint (NEMA 4)

- Crowe Industries Powder Coat (or equivalent) or
- Sherwin-Williams Polane T-Plus (or equivalent)

Weight (Approximate)

Table K
Weight Specifications

Enclosure	Display Size	Weight
NEMA 4	15.1" Display	50 Lbs.
	18.1" Display	59 Lbs.
NEMA 4X	15.1" Display	74 Lbs.
	18.1" Display	83 Lbs.

Note: Weight estimate includes yoke.

Additional options will add to the total weight.

Electrical Requirements:

Power

- 15 Amps. Maximum – 120 VAC, 60 Hz
- (Optional 220-240 VAC, 50Hz)

Outlets
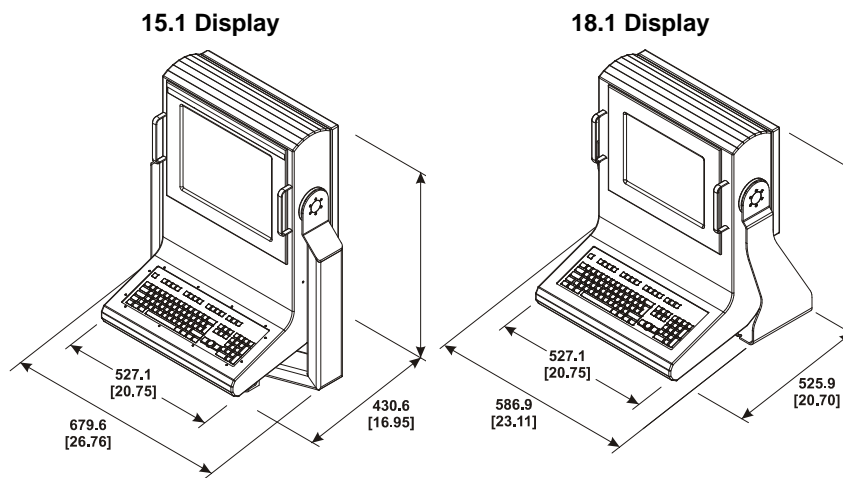
- 8-Outlet Surge Suppressor

Dimensions

This section shows the dimensions. Use this information to ensure you have adequate space to install the unit and route cables. Units are in mm [inches].

Table Top and Floor Pedestal Mounting

For applications where you need the operator station in a fixed position, Rockwell Automation offers the RAC6188 with a table top or floor pedestal mounting option. Both of these mounting options provide side-to-side swivel (180˚) and tilt (30˚) for optimum viewing.

15.1 Display   **18.1 Display**

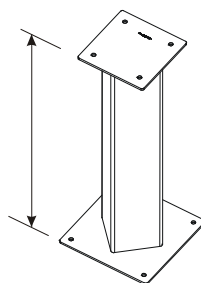527.1 [20.75]   430.6 [16.95]   527.1 [20.75]   525.9 [20.70]   586.9 [23.11]   679.6 [26.76]
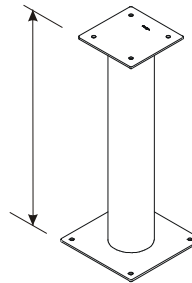
Pedestal Specifications

RAC6188 pedestals are available in NEMA 4 and NEMA 4X stainless steel. The height of the pedestal varies according to the size of the flat panel display selected

- 15.1 Display   749.3 [29.50]

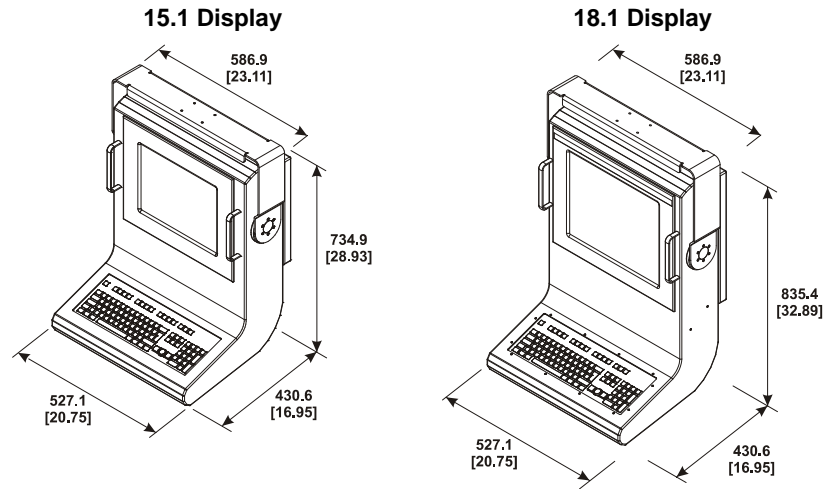- 18.1 Display   952.5 [37.50]

NEMA 4   **NEMA 4X**

Wall Mount Arm and Overhead Mounting

For applications where floor space is limited, consider the overhead or wall mount arm options of the RAC6188.

15.1 Display

586.9
[23.11]

734.9
[28.93]

527.1
[20.75]

430.6
[16.95]

18.1 Display

586.9
[23.11]

835.4
[32.89]

527.1
[20.75]

430.6
[16.95]

Overhead Specifications

The overhead mount option allows you to mount the RAC6188 above the operator in a fixed position. This option gives you 30° tilt adjustment.

Wall Mount Arm Specifications

Each wall mount arm for the RAC6188 provides 360° swivel, 30° tilt, and full side-to-side positioning. Vertical positioning options depend on the enclosure material:

· The NEMA 4X stainless steel arm has a fixed vertical position.

· The NEMA 4 aluminum construction provides 12 in. vertical height adjustment.

NEMA 4

184.4
[7.26]

713.2
[28.08]

NEMA 4 Arm

NEMA 4X

233.4
[9.19]

635.0
[25.00]

A
NEMA 4X   rm
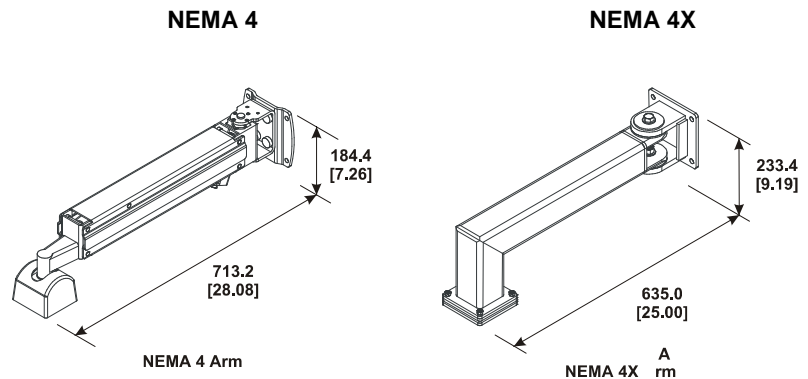
Display Specifications

Table L
Display Specifications

Display	15.0" Flat Panel	18.1" Flat Panel
Type	Active Matrix Color Thin Film Transistor (TFT) LCD	
Backlight		
Type	Cold Cathode Tube (CCT)	Cold Cathode Tube (CCT)
Life Expectancy	50,000 Hours (Typical)	50,000 Hours (Typical)
Field Replacement	Yes	No
Nominal Display Area		
Diagonal	15.1 In. (383 mm)	18.1 In. (460 mm)
Horizontal	12.0 In. (304 mm)	14.1 In. (359 mm)
Vertical	9.0 In. (228 mm)	11.3 In. (287 mm)
Resolution	1024 x 768 pixels, 256K colors	1280 x 1024 pixels, full color
Viewing Angle		
Horizontal(Typical)	+/- 60 Deg.	+/- 85 Deg.
Vertical (Typical)	+ 55/- 45 Deg.	+/- 85 Deg.
Luminance (Typical)	200 nit, 58fL (screen overlay option reduces luminance)	
Contrast Ratio(Typical)	250 : 1	100 : 1
Response Time	35 msec (Typical)	45 msec (Typical)

Table M
Video Specifications

Video	15.1" Flat Panel	18.1" Flat Panel
Supported Standards	640 x 480 @ 60Hz and 75Hz	720 x 400 @ 70Hz (VGA text)
	800 x 600 @ 60Hz and 75Hz	640 x 480 @ 60Hz and 75Hz
	1024 x 768 @ 60Hz (Native)	800 x 600 @ 60Hz and 75Hz
	and 75Hz	1024 x 768 @ 60Hz and 75Hz
		1280 x 1024 @ 60Hz and 75Hz
		(Native)
Video Input Signal	RGB analog (white level = 0.714V above ref. Black, into 75 Ohms	RGB analog (white level = 0.714V above ref. Black, into 75 Ohms
Sync Input Signals	H & V separate (TTL levels, positive or negative)	H & V separate (TTL levels, positive or negative)
Input Connection	HD-15	HD-15

Table N
Controls & Indicators Specifications

Controls & Indicators	
Front Panel	Luminance with Status LEDs (18" Display Only)
Back Panel	Access on-screen display (Top Button)
	Adjust controls through on-screen display (Second and third button)
On-Screen Display and Auto Adjust	Horizontal Size, Vertical Position, Horizontal Position, Contrast, Brightness, Clock Phase, Expand/ Center, Language

Table O
Operator Input Specifications

Controls & Indicators	
Touchscreen	Touchscreen Option – Resistive Antiglare , with Serial Controller using DOS and Windows drivers

Table P
Environmental and Power Specifications

Environmental and Power Specifications		
Environmental	Rating	NEMA 4/12 (IP65) Painted Aluminum Enclosure NEMA 4X (IP65) Stainless Steel Enclosure
	Temperature: Operating Non-Operating	0C to 40C (45C with optional heat sink) -20C to 65C
Electrical	Line Voltage	100 to 132 VAC
	Line Frequency	50-60Hz
Electrical	Power Consumption	6185-C – 61W max, 75 VA max 6185-D – 86W max, 100 VA max

Keyboard and Mouse Specifications

Table Q
Keyboard – Uses Mouse (Integrated) Specifications

Physical	
Rating	NEMA 4 / 4X
Keys	Embossed for enhanced feel
Overlay Characteristic	Wear and chemical resistant
Language	English Standard

Mechanical	
Keys	Sealed Mechanical Cutout for Integrated Mouse
Key Operation	0.4 mm
Key Life Expectation	> 20 million switch cycles
Key Operating Force	150 gms (nominal)

Table R
Mouse (Integrated) Specifications

Mouse (Integrated)	
Material	Industrial Silicone Rubber
Compatibility	Microsoft, PS/2, Ligitech
Features	Full rotation travel and positive directional positioning; Proprietary Fujitsu position sensors
Rating	NEMA 4 and NEMA 4X

Signal Extender Specifications

Table S
Signal Extender Specifications

Mechanical – Transmitter	
Weight:	1 Lb. (0.45 kg)
Height:	1.9 In. (48 cm)
Width:	8.1 In. (206 cm)
Depth:	4.8 In. (122 cm)
Environmental / Power	
Power Supply:	24 VDC @ 500 mA supplied from RAC6188 through Cat-5 cable.
Operating Temperature:	0 Deg. C to +40 Deg. C
Storage Temperature:	-20 Deg. C to +50 Deg. C

Supported Hardware	
Computers:	Computers using 100% IBM PS/2 compatible peripherals.
Video Modes	Non-interlaced VGA, SVGA, XGA, SXGA
	640 x 480 up to 1280x1024
Peripherals	PS/2 or Serial Mouse, PS/2 Keyboard (150 mA max.)
	VGA, HD-15 high density "D" connector
Serial Port (Or Serial Mouse)	EIA-232 async up to 19.2 Kbps, 9-pin "D" connector (female to PC, male to peripheral) TD, RD, RTS, CTS, DTR, DSR, Ground
Audio	
To Speakers	3.5 mm stereo jack for powered speakers, 3 Vpp max., 200 ohms output impediance, < 0.01% THD at 1 KHz
From Microphone	3.5 mm stereo/mono jack, 5.6K ohm pullup for 2 powered electret microphones in a single stereo jack, dynamic microphone supported with reduced volume and quality
Agency Approvals	
FCC class A, UL, C-UL, CE, VCCI Class A	

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ClearTek is a trademark of Microtouch.